



Watershed Boundary Dataset (WBD) California Certification Update 2009

What are the objectives for the Watershed Boundary Dataset (WBD) effort?

One of the goals for the WBD effort is to create a nationally consistent, seamless, and hierarchical hydrologic units dataset based on topographic and hydrologic features across the country. Another goal is to provide more detailed delineation (watershed and subwatershed) in a digital format that is consistent with other national seamless databases.

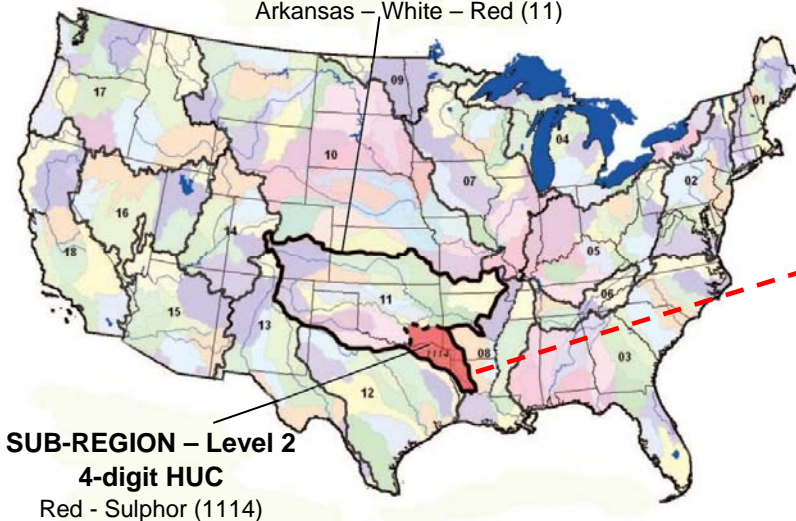
What is a hydrologic unit?

Hydrologic units define the aerial extent of surface water drainage to a point. The intent of defining hydrologic units (HU) for the **Watershed Boundary Dataset (WBD)** is to establish a base-line drainage boundary framework, accounting for all land and surface areas. The selection and delineation of hydrologic boundaries are determined solely upon science-based hydrologic principles, not favoring any administrative or special projects nor particular program or agency. At a minimum, the HU's are

being delineated and georeferenced to the U.S. Geological Survey 1:24,000 scale topographic base map meeting National Standards for Spatial Data Accuracy (NSSDA) [1], some are being completed at a finer scales such as 1:12,000 scale or better. As stated by the *Federal Standard for Delineation of Hydrologic Unit Boundaries* [2], "A hydrologic unit is a drainage area **delineated to nest in a multi-level, hierarchical drainage system**. Its boundaries are defined by hydrographic and topographic criteria that delineate an area of land upstream from a specific point on a river, stream or similar surface waters. A hydrologic unit can accept surface water directly from upstream drainage areas, and indirectly from associated surface areas such as remnant, non-contributing, and diversions to form a drainage area with single or multiple outlet points. Hydrologic units are only synonymous with classic watersheds when their boundaries include all the source area contributing surface water to a single defined outlet point." A newer version of this standard is expected later this year [3].

REGION – Level 1 2-digit HUC

Arkansas – White – Red (11)



SUB-REGION – Level 2 4-digit HUC

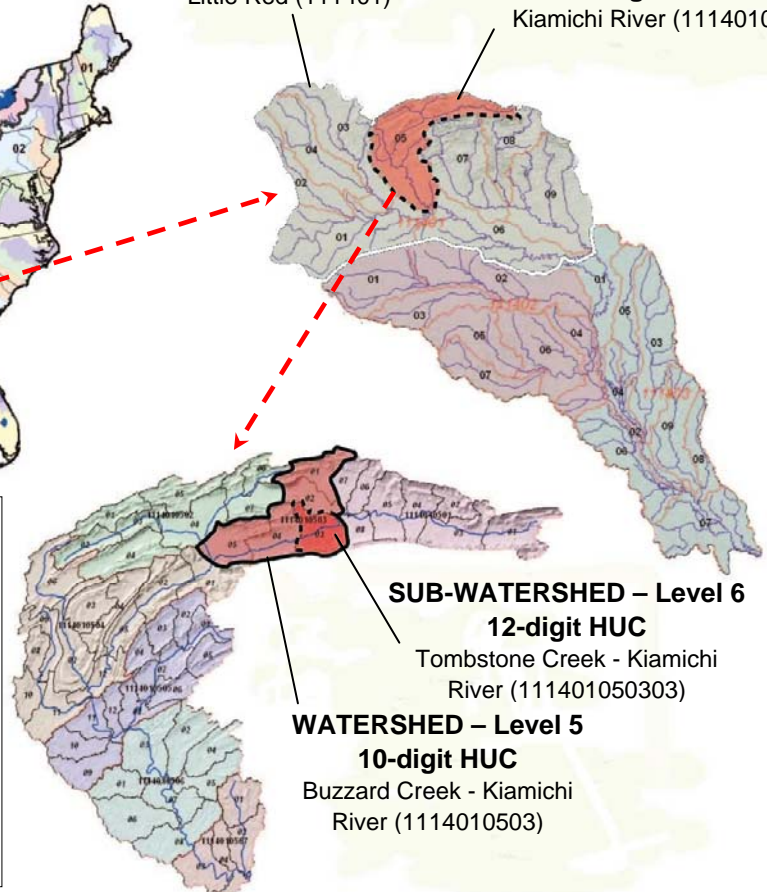
Red - Sulphor (1114)

BASIN – Level 3 6-digit HUC

Little Red (111401)

SUB-BASIN – Level 4 8-digit HUC

Kiamichi River (11140105)



SUB-WATERSHED – Level 6 12-digit HUC

Tombstone Creek - Kiamichi River (111401050303)

WATERSHED – Level 5 10-digit HUC

Buzzard Creek - Kiamichi River (1114010503)

Hydrologic Unit (HU)

Level	Name	Digits	Average Size (mi ²)	Number of Units
1	Region	2	177,560	21
2	Subregion	4	16,800	222
3	Basin	6	10,596	352
4	Subbasin	8	703	2,149
5	Watershed	10	63-391 (40,000-250,000 acres)	22,000 (est.)
6	Subwatershed	12	16-63 (10,000-40,000 acres)	160,000 (est.)

WBD efforts in California:

The California Interagency Watershed Mapping Committee (IWMC) coordinates watershed mapping, dataset creation and has produced the state-wide dataset named CalWater [4]. This group is a collaboration of nine state and federal agencies that have supported the WBD effort since 2000.

California has received full certification on December 2, 2008 ensuring that the Federal Standard for Delineation of Hydrologic Unit Boundaries [2/3] have been integrated appropriately. The dataset is now available through the NRCS Gateway at: <http://datagateway.nrcs.usda.gov/> and the California Spatial Information Library (CaSIL) at: <http://casil.ucdavis.edu/casil/> For information on surrounding states see the NRCS status graphics available at: <http://www.ncgc.nrcs.usda.gov/products/datasets/watershed/>

Transition to the WBD will require that the consumers of this data understand the naming and numbering conventions used in WBD, but also how they relate to other watershed systems that have been used in the past. Coordination and stewardship for this effort is being supported through the IWMC. More available at: <http://www.ca.nrcs.usda.gov/features/calwater/>

The table below shows the various naming conventions used by California organizations when referencing watershed data and provides for cross-walking these to the currently accepted WBD naming and numbering conventions [2/3].

WBD Naming and Numbering Conventions:

WBD LEVEL (USFS HUC)	WBD NAME	WBD NUMBER	CALWATER NAME (Sizes do not match in all cases)
1	Region	2 digit	NA
2	Subregion	4 digit	Hydrologic Region (HR)
3	Basin	6 digit – was accounting unit	Hydrologic Units (HU)
4	Subbasin	8 digit – was cataloging unit	Hydrologic Sub-areas (HA)
5	Watershed	10 digit – was NRCS 11 digit	Super Planning Watershed (SPWS)
6	Subwatershed	12 digit – was NRCS 14 digit	Planning Watershed (PWS)
7	Drainage*	14 digit	NA
8	Site*	16 digit	NA

* recommended - not part of the current standard.

Definitions:

Watershed - Hydrologic unit subdivision below Subbasin (formally Cataloging Unit) (8-digit) and represented with 10-digits. Normal size ranges from 40,000 to 250,000 acres with a single defined outlet point.

Subwatershed - Hydrologic unit subdivision below Watershed (10-digit) and represented with 12-digits. Normal size ranges from 10,000 to 40,000 acres, with some as small as 3,000 acres.

CalWater [3] – The official California Watershed (CalWater) version 2.2 completed in 1999 with six levels of watersheds using a California numbering and naming system including administrative boundaries.

Acronyms:

HA	Hydrologic Area (CalWater)
HR	Hydrologic Region (CalWater)
HU	Hydrologic Unit (WBD & CalWater)
HUC	Hydrologic Unit Code
IWMC	Interagency Watershed Mapping Committee
NMAS	National Map Accuracy Standards
PWS	Planning Watershed (CalWater)
SPWS	Super Planning Watershed (CalWater)
USDA	U.S. Department of Agriculture
WBD	Watershed Boundary Dataset

Cooperating Agencies:

USDA Natural Resources Conservation Service
 U.S. Geological Survey
 U.S. Forest Service
 U.S. Environmental Protection Agency
 National Oceanic and Atmospheric Administration
 U.S. Bureau of Land Management
 U.S. Bureau of Reclamation
 U.S. Corps of Engineers
 Tribal Governments
 State Agencies
 California State Water Resources Control Board
 Local Agencies
 Non-governmental organizations

References:

1. Federal Geographic Data Committee, 1998, Geospatial Positioning Accuracy Standards, Part 3: National Standard for Spatial Data Accuracy, FGDC-STD-007.3-1998. Available at: <http://www.fgdc.gov/standards/projects/FGDC-standards-projects/accuracy/part3/chapter3>
2. Federal Geographic Data Committee, 2004, Federal Standards for Delineation of Hydrologic Unit Boundaries; Version 2.0. Available at: <ftp://ftp-fc.sc.egov.usda.gov/~NCGC/products/watershed/hu-standards.pdf>
3. USGS, DRAFT, Federal Guidelines, Requirements, and Procedures for the National Watershed Boundary Dataset: USGS Techniques and Methods X-XXX, x p.
4. California Interagency Watershed Mapping Committee, 2004, California Interagency Watershed Map of 1999 (CalWater 2.2.1). Available at: <http://gis.ca.gov/~meta.epl?oid=22175>

For More Information:

WBD California Coordinators –
 Lorri Peltz-Lewis, lpeltzlewis@mp.usbr.gov, 916-978-5271
 Donna Knifong, dknifong@usgs.gov, 916-278-3081
 NRCS IWMC:
 Scott Splean, Scott.Splean@ca.usda.gov, 775-450-4773

